ADDITIONAL HIGH-SPEED TRAIN ALIGNMENT ALTERNATIVES AND POTENTIAL STATION LOCATION OPTIONS CONSIDERED BUT REJECTED FROM FURTHER EVALUATION

The Authority has developed a range of potential Bay Area-to-Central Valley High-Speed Train (HST) Alternative alignments and station location options through review of the Program EIR/EIS for the HST system (Authority and FRA, 2005), previous studies, and scoping comments, as well as an engineering evaluation of alignment alternatives and station location options. This range of HST alignment alternatives and station location options was presented at the Authority's March 2006 Board Meeting.

Following additional review of the candidate HST alignments and station locations, it is recommended that three East Bay-to-Central Valley (Altamont Pass) options be withdrawn from further consideration as HST alignments and that a new HST option be added for consideration. Figure 1 shows the three alignments proposed for withdrawal as well as the proposed new option. Reasons for the removal of HST options are categorically summarized in Table 1 and described below.

East Bay-to-Central Valley: Altamont Pass Options

1. SR-84/South of Livermore: This alignment would extend east near the UPRR alignment through Niles Canyon then follow the SR-84 corridor south of Pleasanton and Livermore and continue east (south of Livermore) to the Patterson Pass corridor and to Tracy. Station options include the Pleasanton (I-680/SR-84) Station, or Livermore (South Isabel).

The SR-84/South of Livermore alignment should be eliminated from further investigation because it would have high potential impacts to the natural environment and to agricultural lands. This alignment option would cut through agricultural areas and undeveloped Conservation Easements, increasing habitat fragmentation. The SR-84/South of Livermore alignment would have greater potential impacts to high value aquatic resources and threatened and endangered species than other alignment options through the Tri-Valley (Livermore, Pleasanton, and Dublin) area.

In the mid 1980s, citizens approached Alameda County about a plan allowing for agriculture to be preserved and reinvigorated. The county responded with a plan that requires land to be put under easement for agricultural use to offset housing developments in the southern half of the Valley. The South Livermore Valley Area Plan that was adopted several years later requires developers to find or plant an acre of cultivatable agriculture for every lot that was built up and for every acre covered with housing. The easements were put into the hands of the South Livermore Valley Area Trust, now the Tri-Valley Conservancy, which holds them in perpetuity. There are 3,059 agricultural acres in 30 properties under easement, mostly vineyards, olive groves and grazing. There is one non-agricultural easement of 371 acres of parkland. Figure 2 shows the location of the SR-84/South of the proposed Livermore High Speed Train Alignment and its relation to the easements, as they existed in 2002.

There are several state and federal Endangered Species Act concerns associated with the SR-84/South of Livermore alignment. Due to the more undeveloped setting of this alignment,

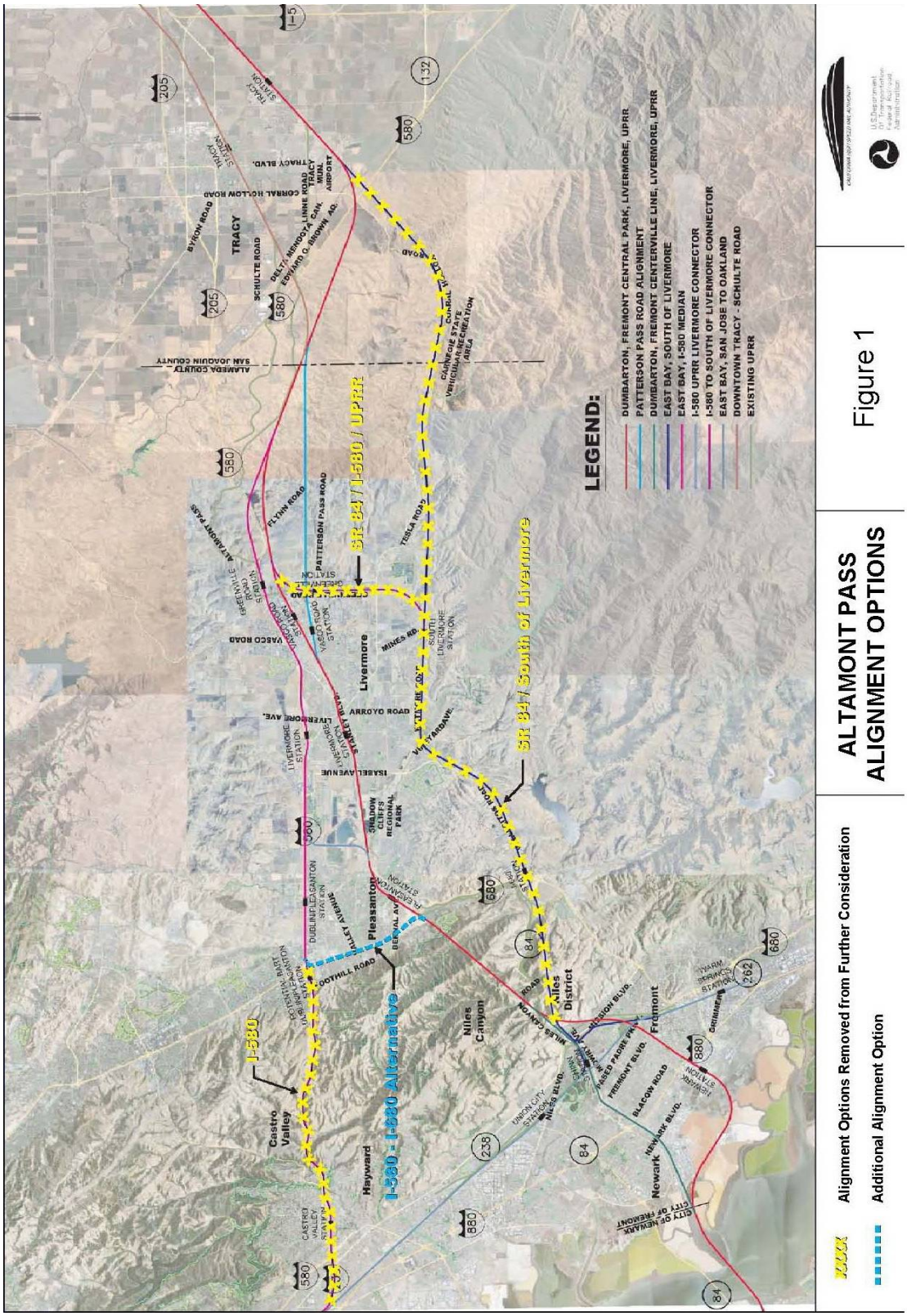

LEGEND:
DUMBARTON, FREMONT CENTRAL PARK, LIVERMORE, UPRR
PATTERSON PASS ROAD ALIGNMENT
DUMBARTON, FREMONT CENTERVILLE LINE, LIVERMORE, UPRR
EAST BAY, SOUTH OF LIVERMORE
EAST BAY, I-580 MEDIAN
I-580 UPRR LIVERMORE CONNECTOR
I-580 TO SOUTH OF LIVERMORE CONNECTOR
EAST BAY, SAN JOSE TO OAKLAND
DOWNTOWN TRACY - SCHULTE ROAD
EXISTING UPRR
SR 84 / I-580 / UPRR
SR 84 / South of Livermore
I-580 - I-680 Alternative
I-580
Alignment Options Removed from Further Consideration
Additional Alignment Option
ALTAMONT PASS ALIGNMENT OPTIONS
Figure 1

Table 1
Bay Area to Merced: High-Speed Train Alternative Alignment and Station Options Considered and Eliminated

Alignment or Station	Reason for Elimination: Construction	Incompatibility	Right-of-Way	Connectivity / Accessibility	Revenue / Ridership	Alignment Eliminated*	Environment	Environmental Concerns
East Bay to Central Valley								
SR-84/South of Livermore		S		S			P	Natural resources, habitat and endangered species, agricultural lands, water resources
SR-84/I-580/UPRR		S		S			P	Natural resources, habitat and endangered species, agricultural lands, water resources
I-580: Bay Fair to Pleasanton	P		S					Construction, logistical constraints, right-of-way
Station Locations								
Pleasanton (I-680/SR-84)				S		P		
Livermore (Greenville Road/SR-84/UPRR)				S		P		
Livermore (Isabel/SR-84)				S		P		

BART = San Francisco Bay Area Rapid Transit District.

Definitions:

Reason: Primary (P) and secondary (S) reasons for elimination.

Construction: Engineering and construction complexity, initial and/or recurring costs that would render the project impracticable and logistical constraints.

Environment: High potential for considerable impacts to natural resources, including waters, streams, floodplains, wetlands, and habitat of threatened or endangered species that would fail to meet project objectives.

Incompatibility: Incompatibility with current or planned local land use as defined in local plans that would fail to meet project objectives.

Right-of-Way: Lack of available rights-of-way or extensive right-of-way needs would result in high acquisition costs and/or delays that would render the project impracticable.

Connectivity/Accessibility: Limited connectivity with other transportation modes (aviation, highway and/or transit systems) would impair the service quality, could reduce ridership of the HST system, and would fail to meet the project purpose.

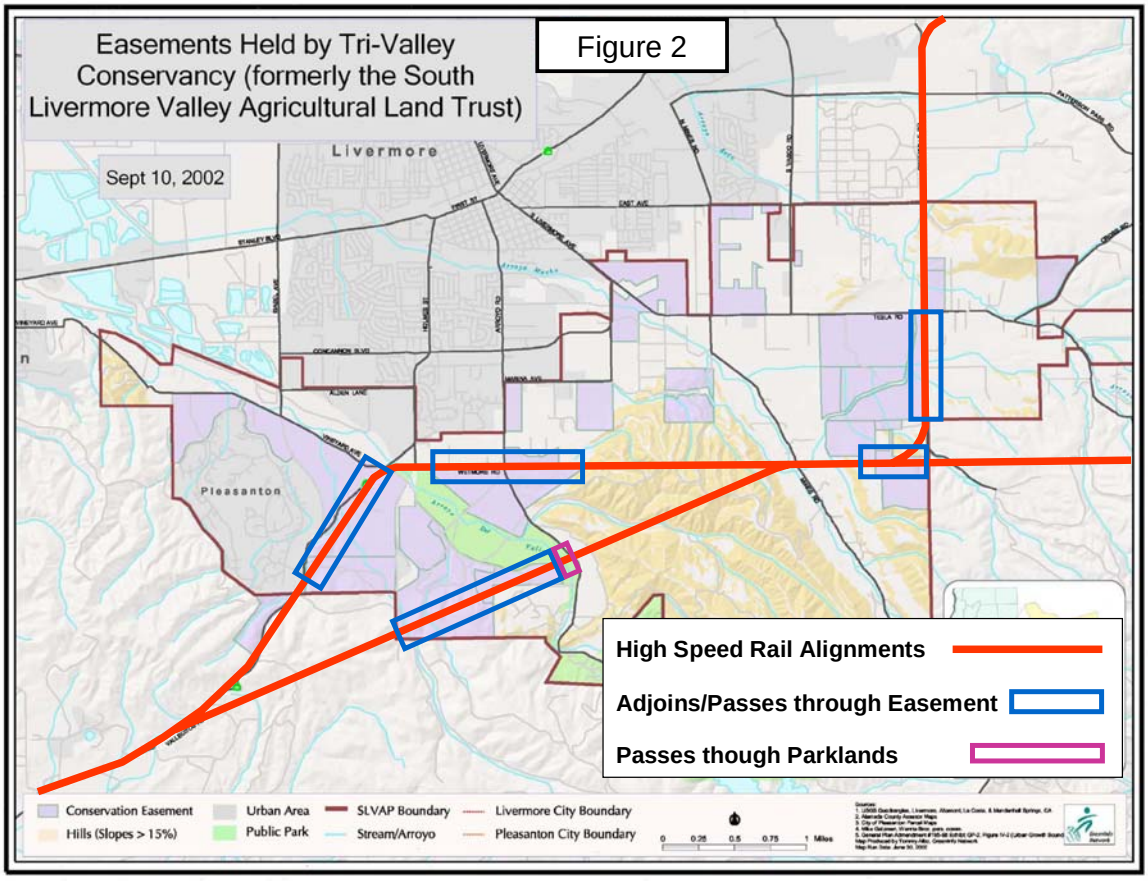
Ridership/Revenue: The alignment/station would result in longer trip times and/or have suboptimal operating characteristics and would have low ridership and revenue and would fail to meet the project purpose.

Alignment Eliminated: Station or connection eliminated because the connecting alignment option was eliminated.

* Alignment Eliminated column only applies to station locations. If an alignment is eliminated, a specific station location may no longer be necessary.

there is a higher likelihood of adverse effects to protected species including creation of a barrier to migration for California tiger salamanders and California red-legged frog. This area is the northern range of the San Joaquin kit fox. This alignment may also create a barrier to movement by the San Joaquin kit fox. Barriers to movement fragment remaining habitat for these species leading to greater population isolation and possible species loss. There is also a greater potential for effects to Alameda whipsnakes in the Sunol Valley area and listed branchiopods (fairy shrimp) along this alignment. The Sunol Valley is the only likely connection between two large populations of the Alameda whipsnakes, that could be adversely affected by the high speed rail line, which would create another barrier/hazard. In addition, the construction of this alignment through the undeveloped and rural open-space and agricultural areas would introduce a higher likelihood for adverse affects on aquatic resources, particularly when compared to the other alignment options for the Tri-Valley area that are within existing rail or freeway rights-of-way.

Figure 2
Easements and Parklands Impacts
Vicinity of Livermore



The South of Livermore alignment would by-pass the existing urbanized areas of Livermore, Pleasanton and Dublin and is remote with respect to the existing BART and Altamont Commuter Express routes. As such, it would not be feasible to provide regional or longer-distance services which would provide convenient access to downtown Livermore or Pleasanton. Candidate station locations along this segment would not support transit-oriented development as well as downtown stations. Development of a transfer point with BART on the SR-84/South of Livermore alignment would not be feasible without a significant extension of the BART line.

The entire SR-84/South of Livermore alignment segment between Niles and I-580 near Tracy would be omitted from further consideration including potential station locations along this alignment.

Station Locations: The following station locations were considered and eliminated because they were located on the eliminated alignment.

- Pleasanton (I-680/SR-84): This potential station would serve the Altamont SR-84/South of Livermore alignment option or the SR-84/I-580/UPRR alignment, or
- Livermore (Isabel/SR-84): This potential station would serve the Altamont SR-84/South of Livermore alignment.

2. SR-84/I-580/UPRR: This alignment would extend east near the UPRR alignment through Niles Canyon then follow the SR-84 corridor south of Pleasanton and Livermore and turn north to connect to the I-580/UPRR Alignment through the Altamont Pass to Tracy. Station options include the Pleasanton (I-680/SR-84) Station, or Livermore (Greenville), and Tracy (downtown) or Tracy (ACE).

The SR-84/I-580/UPRR should be eliminated from further investigation because it would have high potential impacts to the natural environment and agricultural lands. This alignment would have the same issues as presented for the SR-84/South of Livermore alignment (see above).

Station Locations: The following station locations were considered and eliminated because they were located on alignments that were eliminated.

- Pleasanton (I-680/SR-84): This potential station would serve the Altamont SR-84/South of Livermore alignment option or the SR-84/I-580/UPRR alignment, or
- Livermore (Greenville Road/SR-84): This potential station would serve the Altamont SR-84/I-580/UPRR.

3. I-580 Bay Fair to Pleasanton: This alignment would extend east along the I-580/BART corridor from Bay Fair to Pleasanton.

The I-580 from Bay Fair to Pleasanton should be eliminated from further investigation since it has been found to be impracticable as an HST alignment due to engineering and construction complexity and logistical and right-of-way constraints. Moreover, the removal of existing and

growing transit services associated with this option conflicts with the purpose and need and objectives of the HST system.

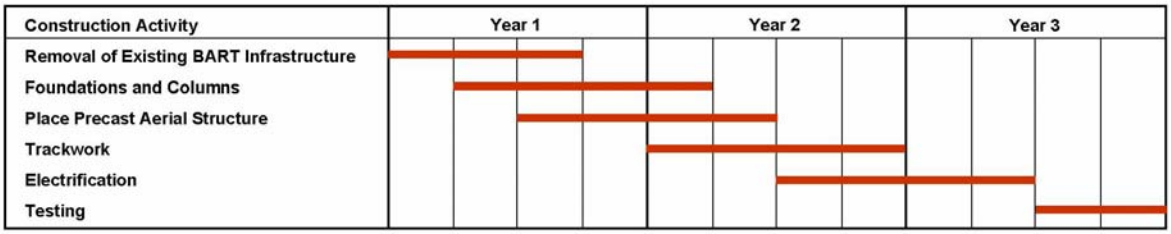
The I-580 median between Bay Fair and Pleasanton is occupied by the BART system. There are two existing stations; Castro Valley and the Dublin/Pleasanton Station. A future "infill" station is presently under design for West Dublin. This station will be located just west of the I-680 overcrossing. The present and future stations are all center platform type stations with fairly narrow widths.

The HST option in this corridor would replace the existing BART system with high-speed and regional rail infrastructure and service resulting in significant impacts to the existing operating BART system between the Pleasanton/East Dublin terminus and Bay Fair stations for a number of years to allow for the decommissioning of BART, construction of the new infrastructure, and testing and commissioning of the new service. A practical construction schedule including removal of the existing BART infrastructure, foundation and aerial structure placement, trackwork installation, electrification, and testing and startup would be three to four years in duration. Steps could be taken to provide limited BART services during portions of the construction period (particularly during the early phases of construction including the removal of BART); however, since the end result is replacement of the system, it is unlikely that these steps would result in eliminating a significant full closure period (see potential construction schedule shown in Figure 3).

Figure 3

Best Case Construction Schedule

Replacement of Dublin-Pleasanton BART with proposed HSR



The removal of existing and growing transit services conflicts with the purpose and need and objectives of the HST system (i.e., "Improve public transportation systems and services" or "Enhance efficient operation of transportation facilities and service"). The completion of the existing Dublin Pleasanton Extension (DPX) to the BART system represents an infrastructure investment of over $500 million dollars of public funds and a six-year construction effort. In addition to the impacts to BART, there would be impacts to the existing freeway facility to accommodate various construction phases, potentially narrowing and shifting existing lanes.

This HST alignment option is impracticable because, due to the presence of the existing I-580/I-680 freeway-to-freeway interchange and the proposed new connector ramp at the fourth level, the HST express tracks would need to be constructed along a continuously high (80'+) aerial structure at the fifth level through the interchange area and for nearly one mile in either direction to accommodate high speed operation. Logistical constraints to the construction of such a structure make this option impracticable.

Additional right-of-way would also be required for station areas and connections (crossovers) between tracks. It would be impracticable to secure these areas of additional right-of-way since I-580 would have to be relocated and reconstruction and significant areas of existing land uses would be displaced. The median of I-580 is approximately 60-70 feet wide. Station platforms and tracks would require 90-100 feet of width. Crossovers between the express tracks (aerial) and the regional rail tracks (at-grade) would require up to 60 feet of additional right of way for up to one mile in length at one or more locations along this segment to provide sufficient capacity and reliability.

To connect the HST from the I-580 Corridor to the South, the HST would have to pass through an established neighborhood in an aerial configuration, bisecting the community. Figure 4 shows where the alignment would pass though this neighborhood. In addition, operating speeds would be highly constrained (<100mph) through significant portions of the alignment due to numerous restrictive curves in many sections. The existing BART system was designed within the I-580 median for operational speeds of up to 75 mph.

Considering these significant concerns, the portion of the I-580 alignment segment extending through the I-580/I-680 interchange and extending west to Hayward (Bay Fair) would be eliminated from further consideration as impracticable and for failing to meet the purpose, need and objectives of the HST system.

Figure 4
I-580 High Speed Rail Alignments Connecting to the North and South Vicinity of SR-238 & I-880

Alternative Alignment (sub-option) to be Added for Consideration

East of the existing BART facilities, the I-580 median is less problematic as an HST alignment (the "I-580/UPRR" option). It appears to be potentially feasible to follow I-580 from the East to the existing BART Dublin/Pleasanton station and then swing to the South paralleling I-680 to connect with a tunnel connection to Niles along the UPRR alignment (see Figure 1). This "I-580/I-680/UPRR" would be evaluated as a sub-option of the existing I-580/UPRR alignment. The cities of Livermore and Pleasanton suggested that this sub-option be evaluated.

While constructing high speed rail facilities over portions of the existing BART station and tailtrack facilities would be problematic, use of staging techniques such as construction falsework, pre-fabricated segments, and limited hours of construction for high-impact activities could potentially make this alignment practicable to construct. An advantage of this option is the possibility of developing an intermodal transfer point between the two systems at the location of the existing end-of-line BART station at East Dublin/Pleasanton.